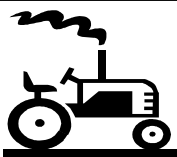


PROFILES IN TEXTILE & CARPET RECYCLING

by Maggie Coulter

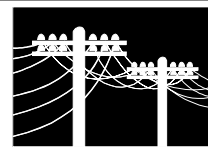
Overview of the Textile Life Cycle

This insert profiles four enterprises involved in textile reuse and/or recycling. Since textile reuse/recycling is well-established, only about 7 percent of textiles are landfilled according to the National Council for Textile Recycling. The most recent California waste characterization study, released in 1999, indicated that textiles were about 2 percent of the waste stream. There are, however, other environmental impacts associated with the textile life cycle that is outline below. The production and extraction stages can use significant amounts of water as well as impact workers, air, water, and land from the use of chemicals pesticides, herbicides, and fertilizers. Impacts vary based on the raw material used; cotton uses more water than hemp and non-organically grown cotton uses more pesticides than organically grown cotton or hemp. Energy is used in all stages of the textile life cycles for transportation; energy is also used especially in the processing, preconsumer, and sales states for equipment and building operations. Textile processing and consumer use (laundering) are also very chemical- and water-intensive.



1) Raw Materials Production & Extraction. Textiles are made from natural fibers including cotton, wool, silk, hemp; from synthesized materials including cellulose (rayon) and petroleum (polyester, nylon, etc.); and from blends of natural and synthetic materials.

2) Textile Processing. Textile processing involves: production of yard/thread, production of fabric by weaving or knitting, preparation including dyeing of that fabric, and cutting and sewing into clothing. Waste includes rejected fabrics due to discoloration or other production errors.



3) Preconsumer (postindustrial). Of the material left over from cutting and sewing fabrics, about a third is ground up to make shoddy for stuffing in furniture or automobile upholstery, carpet padding, and other products; a quarter is made into rags; a small amount is respun into yarn; the rest is landfilled.

4) Sales. Wholesale or retail sales of textile products utilizes transportation energy as well as energy and material related to store buildings or storage.



5) Consumer Use. Laundering is the major impact of consumer use. It requires energy, water, and chemicals (from cleaning agents/detergents).

6) Post Initial Consumer Use. Much used clothing is donated to thrift stores and other charities. Less than a fifth of this clothing ends up on U.S. thrift store racks; 80 percent of it is sold to vendors and then resold in other countries as used clothing. Some used clothing and used sheets, towels, etc. are sold to U.S. businesses for rags or shoddy. Most of what remains will end up in the landfill.



Resources:

"How Susie Bayer's T-Shirt Ended Up on Yusuf Mama's Back", George Packer, New York Times
Profile of the Textile Industry, U.S.EPA Office of Compliance Sector Project Notebook
Life Cycle Assessment Applied in the Textile Sector, Lisbeth Dahllof
Office of Textiles and Apparel, www.otexa.ita.doc.gov
National Council for Textile Recycling

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Los Angeles Fiber Company

Started in 1983 by Ron Greitzer and his father Stan, the Los Angeles Fiber Company's motto is "Saving our Planet, one Square at a Time." Ron Greitzer was born into the fiber filling business. His grandfather, Jack Bayer, started Reliance Upholstery Supply Company in 1931 to make filling materials for the mattress and soft furniture industries. In its beginnings, LA Fiber made textile "shoddy" for Reliance's new line of carpet padding using scraps from the then-huge textile industry in Los Angeles. (Greitzer explains that the term "shoddy" refers to undetermined fiber; it is a filling made from putting textiles through machinery that shreds it into fiber strands and fluffs it.)

"LA Fiber's feedstock changed during the late 1990s as more and more of the garment industry migrated out of the country," notes Greitzer. "Ninety percent of the textile cut-and-sew businesses left in 1998 with the passage of NAFTA."

Then Greitzer made a discovery that more than made up for the loss of the preconsumer feedstock from the textile industry. One day he was watching as workers were unloading textile clippings. The clippings came in bales with cardboard or used carpet scraps tied around the outside. He saw one of the workers feeding the textile material into the

processing machine and then tossing in the carpet scraps when he got to the end of the bale. "I told him to stop," says Greitzer, "I said he couldn't throw those carpet scraps in. The guy laughed and said he'd been doing that for 15 years. Suddenly I realized here was new feedstock—used carpet."

There was plenty of used carpet being thrown away at area transfer stations and landfills. "In 2002, 4.7 billion pounds of carpet waste was landfilled," notes Greitzer. "In California, carpet is about 4 percent by volume of the waste stream." Processing carpet required equipment and process modifications at LA Fiber. With a loan from the California Integrated Waste Management Board's Recycling Market Development Zone program, Greitzer was able to buy the equipment he needed.

"Today, Reliance is the only company in the world that makes a synthetic carpet cushion [pad] from 100 percent postconsumer waste carpet fibers," says Greitzer. "This is in addition to their 100 percent preconsumer line." However, as Greitzer explained, "offering a 100 percent postconsumer recycled product has involved trying to educate carpet companies AND their customers."

Greitzer has developed marketing and supply programs with some of the largest carpet yarn producers (Dupont, Honeywell, Solutia). LA Fibers also offers a recycle program to carpet dealers and installers to divert their waste carpet and purchase his synthetic carpet pad made from that waste. "We are working on getting the major box retailers to carry this recycled product. Currently their products are either made from virgin petroleum-based materials or from preconsumer material, but not postconsumer. In reality, making products from preconsumer waste is not recycling as companies have been using postindustrial products for years—this stuff has not been going to the landfill."



Workers feeding used carpet into processing machine.

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"We are keeping carpet out of the landfill," explains Greitzer. "In the first half of this year we processed 20 million pounds of used carpet—all of that would have gone into the landfill. What has to happen is that retailers and dealers need to share in the responsibility of finding a home for products made from postconsumer carpet. Major carpet mills have to take charge and help educate consumers about the advantages of using products made from postconsumer content. And we need consumers to ask for postconsumer padding. If they ask for postconsumer, stores will supply it."

Processing the materials starts with the delivery of used carpet in trailers to the facility. These are unloaded in 15 minutes by one of the plant's 54 employees. The used carpet comes from transfer stations and installers. LA Fiber workers sort the carpet by hand and check it with infrared technology to verify the type of material it is made from: nylon 6, nylon 6.6, polypropylene, polyester, or wool. The carpet pieces are then put through a machine which removes the dirt and hard backing. Next the material goes through a series of machines multiple times to break it apart into fiber strands; the carpet goes through three times more than textile material. The resulting shoddy is made into carpet pads by adding latex and then heating to melt the latex so that it will bond the fibers together.



Shoddy made from carpet on production line.



Ron Greitzer, CIWMB's Dassi Pintar, and grinding drum.

In assessing the cost of new versus recycled material, Greitzer notes that it is more expensive to process recycled feedstock than virgin materials. "The savings is on the raw materials," he explains. "The recycled material is cheaper so that offsets the higher production expense so the end product costs the same whether the feedstock was recycled or virgin."

Ron and his management team are always on the lookout for recycling opportunities. One of his drivers was at the landfill and saw a company throwing away large bundles of polyester fiber; he told them to bring it to LA Fiber instead. Now that company saves disposal costs and LA Fiber has additional feedstock to use for fiber fill.

Greitzer is proud of his work. Acknowledging there have been many ups and downs, he smiles and says, "If I can take or keep these valuable commodities out of the landfills and make a good product out of them, at the end of the day, I have made my contribution to our society."

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Goodwill Southern California

by Maggie Coulter

Thrift stores are typically the first entry of clothes and many other used consumer goods into the reuse and recycling process. "About 60 percent of our donations and 50 percent of our sales are from clothing," explains Peter Duda, retail manager for Goodwill Southern California (Goodwill S.C.). "We have about 40 stores that accept donation. We also have trailer and free-standing donation centers whose material in turn goes to individual stores."

At one time Goodwill S.C. had a centralized operation. All donations came to one place and broken items could be repaired. That is no longer true, so broken items are disposed of along with any soiled clothing. "Most clothing comes already washed and in pretty good condition," he Duda. "People donate because they want it to be used again."

After sorting out clothing that does not smell fresh, the stores will pick out about half of what they receive to display on the racks. The rest goes immediately to one of three clearance centers. Items are on the rack for five weeks, then the price is cut in half. If the item still hasn't sold, it goes to the clearance center. "In the thrift business," Duda notes, "the great majority of the items that will sell, sell within 48 hours of going on a rack."

Open seven days a week, Goodwill S.C.'s clearance centers are located in San Bernardino, Panorama City, and Los Angeles. Clothes sent to these clearance centers are put on big tables where the public can buy items for lower prices than in the Goodwill S.C. stores. Duda notes those who come to buy include the general public, people buying for yard sales, and dealers buying for other thrifts.

The clearance centers operate at a quick pace because they have items coming from their stores all the time. "Basically a store turns over its entire inventory every five weeks," explains Duda. If items don't sell from the clearance tables within 24 hours or less, they are bundled and auctioned off. Auctions are going on all the time."

At the end of 48 hours, whatever hasn't sold is bailed and sold to companies that will make rags or shoddy from them. In the bundling process, Goodwill tries to make sure each bundle contains saleable items. "Less than 5 percent are rags or not usable items, notes Duda. "Sometimes we will get just fabric. Usually everything is wearable." To keep the material moving, Goodwill S. C. rents out lot space on which it sets up tents to help expedite dealers loading their trucks.

Photographs from the Rag Making Process



Graders sorting used clothing.



Workers sorting and cutting clothing into rags.

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Dealers are usually individuals or small businesses, Duda explains. "They aren't big companies. Some buy a few bales and load them on a pick-up truck." He doesn't know where all the material ends up, noting, "the world market for goods is always changing. Some dealers take clothes and hard goods to Mexico to sell. Others will sell to business that sell the used clothing in other countries."

Goodwill S.C. has not gotten involved in the re-marketing of their clothing. "It is complicated and we don't have the expertise," notes Duda. "There are plenty of people who buy from us. We compare prices between companies and try to get the most per pound. The market fluctuates. Current rates are 5–10 cents per pound."

Each Goodwill is autonomous, explains Duda, and each is responsible for their own fundraising. But they work under the national umbrella which provides an open network for communication and information sharing. Goodwill International also gets rates on goods and shares best practices.

Goodwill S.C. sometimes assists smaller charities and thrift stores that don't have a system for disposing of donations because they are too small.

One time a homeless aid group got more donations of clothing than they could use. The group gave the clothing to Goodwill S.C.; in exchange, they got vouchers that their homeless clients could redeem in a Goodwill store. Goodwill S.C. also did this for victims of the San Bernardino Mtns.' fire.

While Goodwill S.C. maximizes the use of its donations to help its own programs, "we also recognize the needs addressed by the dealers who buy the clothing and other goods we can't sell," explains Duda. "We don't repair goods, but these dealers will take broken TVs, bicycles, toys, and other household goods to Mexico where people will repair them. There is a huge need for this in these times; there are desperately poor people. This is the only way they can afford to buy."

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Laundry machines (300-pound capacity).



Finished wipers being boxed for shipping.

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Sandler Brothers

Raised in the scrap metal business, Rick Chesney has been involved in textile recycling for longer than he likes to admit (since at least 1968). One day, many years ago, Chesney went to help his uncle start a new job cleaning out hospitals and institutions for the state of Pennsylvania. They soon discovered that the job entailed disposing of old sheets and towels and not long after they were in the textile recycling business.

A year and a half ago, Chesney was hired by the president of Sandler Brothers, Moris Herscowitz, to help direct operations at their Los Angeles facility. Sandler Bros., which has been making industrial rags for more than 60 years, was bought by Herscowitz about ten years ago. The Los Angeles plant, also their corporate headquarters, employs 47 people on roughly 2 1/2 acres. The 60,000 square-foot facility is about the same size as their Chicago plant. Their largest facility is a 120,000 square-foot plant in Georgia; they also have a 65,000 square-foot facility in New Jersey.

Sandler Bros.' core business is wiping rags, which it sells to janitorial supply stores, paint stores, beer manufacturers, industrial supply houses, hardware stores, and others. "Rag dealing is an old business," Chesney smiles. "It started when people started needing cloth to wipe things up. It really got going with the coming of the industrial age and machines. Vendors would go around and collect

threadbare clothes and turn them into wiping rags." Most of Sandler Bros.' feedstock is from clothing rejected by thrift stores which they buy from graders. "We don't get involved in grading of used clothing," explains Chesney. "That is a whole thing in and of itself and it is also very competitive. These people specialize in sorting and marketing used clothes that the thrift stores couldn't sell."

Sandler Bros.' workers sort the used clothing into all-cotton and mixed cotton. To discern the fabric type, Chesney explains, they sometimes use a fire test. Cotton will smolder and poly-cotton mix will melt. Workers cut off the neck, buttons, and sleeves and then cut what is left into rectangles.

Sandler Bros. also buys preconsumer textiles directly from linen or clothing manufacturers. This includes the scraps of material left from cutting out clothing. Sometimes they'll get several yards at the end of a run of fabric that wasn't long enough for the manufacturer to make what they wanted to from it. Another source was cloth originally intended to be wrapped around perfume bottles that were then packed inside a box. They made this material into polishing cloth.

Expansion into Non-Woven Material

In the past few years, Sandler Bros. has been able to expand, in part with the help of a loan through the Recycling Market Development Zone program. Other funds for the expansion came from a commercial real estate loan by a private bank and matching funds from the owners.

Part of Sandler Bros.' expansion has included non-woven or non-loom material. "This is material which is made from cellulose. It is basically wood pulp, water, and glue which is melded using high pressure injection heating," Chesney explains. "The cellulose gives it strength." Some of the non-woven material is paper rags. "Paper was only accepted as a wiping material in the past ten years," Chesney clarifies. "If you add oil to paper,



Rick Chesney (left) and cutting table.

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it will cause friction and pick up dust. But, paper isn't good for heat. Also, for wiping metal, cloth picks up little bits that would get caught on the paper and then rub against your skin."

In the past four years, Sandler Bros. has been selling non-woven materials for nursing home and veterinary supplies. They purchase seconds and production overruns of paper cloth and cut it into new products, including disposable wipes, patient gowns, bibs, bed liners, dressing gowns, and exam table coverings. Originally this paper cloth may have been intended for these same purposes but was rejected by the manufacturer because of color or overproduction.

Other Products & Services

Sandler Bros. also purchases closeout textiles or those rejected because of color irregularities, mislabeling, or other reasons. One example was fabric that which was to be made into bedding, but the dye lot was not the right color. Sandler Bros. bought the material and shipped it to their Georgia plant where it was sewn into sheets etc. and then packed in sets or included as part of a "bed-in-a-bag" product (matching sheets and pillow cases).

"We also buy bought manufacturer-rejected throw rugs," explains Chesney. "We cut off the labels, repackage and sell them. "We recently did something similar with terrycloth lounge chair covers. After removing the label, we designed a new slip-sheet describing the product, wrapped them in plastic, and sold them to hotels for \$40 a piece."

They also offer a laundry service so that companies that buy the rags can also have them washed. "This saves the company money since rewashing is cheaper than buying new rags," notes Chesney.

"We have stayed out of vintage clothing which is a specialty in the business," Chesney noted. "People buy and recondition used clothing or make it into pillow covers."



Women sorting textiles at Sandler Bros.

A new area for Sandler Bros. is selling material for respinning into new yarn made from cotton and poly-cotton mixes. "We sell pieces of cut-out fabric, which are too small for rags, to a company in Italy and one in Spain. They thrash the material and respin it back into yarn. I believe they only use preconsumer textiles, not used clothing, and they only want white." Chesney was not aware of any companies in the U.S. doing respinning.

Sandler Bros. also processes burlap, plastic, sisal, and cloth shipping bags they buy at loading docks. "These bags were used to transport coffee, cocoa beans, rice, and other materials from overseas," notes Chesney. "Once the bags are emptied into a larger container, they aren't needed. We buy them, sort out the dirty and ripped ones, clean them and resell them as bags or cut them up for rags."

It is a creative business, Chesney explains. "All our raw goods were intended for something else. We buy what the manufacturers don't want and the thrift stores can't sell. We sort it, cut it, fold it, repackage it, and sell it."

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by Maggie Coulter

Peerless Materials Company

Located in a 35,000-square-foot warehouse in Los Angeles's industrial district, Peerless Materials Company has been in business for 27 years making and selling industrial wiping products from pre- and postconsumer cloth. Peter Pritchard, who bought the company with Lou Buty in 2002, explained they have diversified in the last two years. That has included the production and sales of nonwoven (or paper) wipers, absorbents for containing oil spilled on water, and stormwater control products to keep oil and sediments from running into rivers and the ocean. However, 80 percent of Peerless' business is still wiping products that are sold to industrial companies. About half of their customers use the wipers themselves and about half resell them to their customers.

About 85 percent of Peerless' wipers are made from postconsumer material and about 15 percent are preconsumer. About half of the postconsumer feedstock is clothing purchased from local graders, including one that subleases part of their facility. The other half comes from area laundries that sell Peerless their old linens, towels, and sheets.

The preconsumer source comes from both off-cuts from t-shirts (the leftover material when t-shirts are cut out) and from textiles rejected because of defects, such as color. The t-shirt material, which naturally comes in an off-white color, is bleached white in one of the very large washing machines at Peerless that holds up to 300 pounds of material. "We bleach the material because this is what our customers prefer," says Pritchard.

Because wiper cloths need to be absorbent, Peerless buys used clothing or cuttings that are cotton or high percentage cotton mixes. When the used clothing comes into the Peerless facility, it is first sorted by material type. It then goes to an area where workers, mostly women, stand at cutting machines that have a sharp blade. First they cut off the collar, buttons, and zippers; the remainder

is then cut into rectangular shapes. Next the clothing is hand-packed, by weight, into cardboard boxes or large woven plastic bags for delivery. Waste from Peerless includes the zippers and other parts cut off the used clothing in the rag-cutting process. They also end up with material that is not suitable for wipers, some of which gets sold to LA Fiber to be made into carpet pads (story, page 2).



Peter Pritchard and the packing operation .

In the clothing recycling business, where "everybody knows everybody else," Pritchard is a relative newcomer. "This is my third career," he says, "I started out as a civil engineer and then worked in banking. I always wanted to operate a small business. When my neighbor Lou Buty learned that the company's former owner was considering retiring, we got together to buy Peerless. Buty also owns American Textile & Supply Inc., now Peerless' sister company, located in Richmond, California.

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